UNITED STATES MARINE CORPS
LOGISTICS OPERATIONS SCHOOL
MARINE CORPS COMBAT SERVICE SUPPORT SCHOOLS
TRAINING COMMAND
PSC BOX 20041
CAMP LEJEUNE, NORTH CAROLINA 28542-0041

D209

STUDENT OUTLINE

CHARACTERISTICS OF AIRCRAFT

LEARNING OBJECTIVES

1. TERMINAL LEARNING OBJECTIVE: Given supplies and equipment to be embarked, necessary tools, equipment, and materiel, information concerning a specific type of ship, aircraft, or conveyance to be used, and the references, prepare supplies and equipment for embarkation to ensure compliance with the requirements of the specific type of ship, aircraft, or other conveyance to be used, per the reference.

2. ENABLING LEARNING OBJECTIVES:

a. Given a picture of an aircraft, and the reference, identify the type of AMC aircraft per the reference.

b. Given a picture of an aircraft, and the reference, determine the passenger capacity per the reference.

c. Given a picture of an aircraft, and the reference, determine the allowable cabin load per the reference.

d. Given a picture of an aircraft, and the reference, determine the height restriction per the reference.

e. Given a picture of an aircraft, and the reference, determine the maximum amount of 463L pallets that can be loaded per the reference.

OUTLINE

1. **CHARACTERISTICS OF AIRCRAFT USED IN AIR MOVEMENT**. There are two types of airlift, Tactical and Strategic.

a. Tactical Airlift. The carriage of passengers and cargo within a theater by means of: Airborne operations, parachute assault, helicopter borne assault, air landing, air logistic support, special mission, and aero-medical evacuation missions.

b. Strategic Airlift. The carriage of passengers and cargo between theaters by means of: Scheduled services, special flights, air logistical support, and aero-medical evacuation.

2. TYPES OF AIRCRAFT:

a. C-130 Hercules. The primary tactical airlift aircraft in Air Mobility Command (AMC) is the C-130 Hercules. Its mission is the intra-theater delivery of personnel, supplies equipment.

(1) Airdrop capabilities include:

(a) Troops

(b) Cargo

1 Cargo Delivery System (CDS)

2 Heavy Drop

3 Low altitude parachute extraction system

(2) Air/land capabilities include:

(a) Allowable Cabin Load (ACL) 25,000 lbs

(b) Passenger (PAX) Capacity 90 (maximum)

(c) 463L Pallet Capacity 6

b. C-141B Starlifter. A strategic aircraft designed with the primary mission of supporting global military activities with air/land and airdrop missions. Its mission is generally designed to deliver cargo and troops from the continental United States (CONUS) to major airheads within the theater of operations. It is capable of air refueling which greatly enhances its use in long-range operations.

(1) ACL 46,000 lbs (varies)

(2) Pax Capacity 200 (maximum)

153 (over water)

(3) 463L Pallet Capacity 13

c. C-5A and C-5B GALAXY. A strategic aircraft designed with the primary mission of global strategic airlift of outsized cargo. Outsized cargo being is cargo that will not fit inside the C-141 Starlifter. It is capable of air refueling which greatly enhances its use in long-range operations.

(1) ACL 130,000 lbs (varies)

(2) PAX Capacity 73 (permanently installed)

(3) 463L Pallet Capacity 36

d. KC-10 Extender. A global strategic aircraft designed with a dual-purpose mission. The KC-10 functions as an aerial refueler and a cargo aircraft. It is capable of air refueling which greatly enhances its use in long-range operations. The KC-10 is comparable to the commercial DC-10 passenger aircraft.

(1) ACL 80,000 lbs (varies)

(2) PAX Capacity 69

(3) 463L Pallet Capacity 23 (with 10 or less Pax)
17 (with 69 Pax)

e. KC-135. The KC-135 is a B707 airframe that carries from 150,000 to 185,000 pounds of aviation fuel for in-flight refueling. It can carry up to 57 PAX, and cargo is limited to carry on items that can fit through the KC-135's troop door.

(1) ACL 42,000lbs (non-palletized)
36,000lbs (Palletized)

(2) PAX Capacity 57 (4 with 6 pallets)

(3) 463L Pallet Capacity 6

f. C-17 GLOBEMASTER. Powered by four turbine fan engines that are remarkably quiet and very powerful. Although the C-17 has about the same wingspan as the C-141, it carries twice the payload. The C-17 will also carry the same outsized equipment (i.e. tanks, LAV's) as the C-5, and it can use fields previously only suitable for C-130 operations. It is capable of air

refueling which greatly enhances its use in long-range operations.

(1) ACL 90,000 lbs (varies)

(2) Pax Capacity 102 (maximum)

(3) 463L Pallet Capacity 18

g. Civil Reserve Air Fleet (CRAF). Group of commercial aircraft with crews, that is allocated in time of emergency for exclusive military use in both international and domestics services.

(1) B-747:

(a) ACL 180,000 lbs

(b) PAX Capacity 364

(c) 463L Pallet Capacity 33

(2) DC-10:

(a) ACL 120,000 lbs

(b) PAX Capacity 242

(c) 463L Pallet Capacity 30

(3) MD-11:

(a) ACL 170,000 lbs

(b) PAX Capacity 320

(c) 463L Pallet Capacity 41

(4) DC-8:

(a) ACL 52,000 to 82,000 lbs

(b) PAX Capacity 165 to 219

(c) 463L Pallet Capacity 13 to 18

(5) B-707:

(a) ACL 60,000 lbs

(b) PAX Capacity 175

(c) 463L Pallet Capacity 13

(6) L-1011. The L-1011 is a wide body aircraft used to transport passengers only. It can carry up to 273 passengers.

3. MATERIEL HANDLING EQUIPMENT (MHE):

a. **Forklifts**:

(1) 4,000 lbs Forklift

(2) 6,000 lbs Forklift

(3) 10,000 lbs Forklift

b. K-Loaders:

(1) 25K-Loader. The 25K-loader is a self-propelled cargo transportation platform. It can lift and transport three 463L pallets with maximum cargo weight of 25,000 lbs.

(2) 40K-Loader. The 40K-loader can rapidly load or offload five 463L pallets. It can lift and transport loads up to 40,000 lbs. and the deck can be adjusted to match with the rails, catwalks, and 463L system rails and locks.

(3) 60K-Loader. The 60K-loader can rapidly load or offload six 463L pallets. It can lift and transport loads up to 60,000 lbs. and the deck can be adjusted to match with the rails, catwalks, and 463L system rails and locks. It can be used to service all military and civilian aircraft.

c. Wide Body Loaders:

(1) Cochran Loader. There are two different models of Cochran loaders. The Cochran loader is used extensively with the KC-10 and CRAF aircraft (B747 and DC-10).

(a) 316A. This is the older of the two, it can carry up to 25,000 lbs (two 463L pallets or a medium size vehicle).

(b) 316E. The 316E version has an increased payload of 40,000 lbs. (three 463L pallets or a medium size vehicle).

(2) Wilson Loader. The CL-3 Wilson loader is the newest of all the wide body loaders. It can carry up to 40,000 lbs. (three 463L pallets or a medium size vehicle).

d. Miscellaneous Equipment:

(1) Pusher Vehicles

(2) Rollerized Flatbed

(3) Pallet Dollies

(4) Passenger Stairs

4. SUPPORTING AGENCIES:

a. AMC, Tanker Airlift Control Element (TALCE):

(1) Provides transportation functions from the ready line through aircraft departure.

(2) Provides continuous liaison with all units involved in the air movement and provides technical supervision.

b. Departure Airfield Control Group (DACG):

(1) Transfers control of aircraft load to the TALCE and monitors the loading of the aircraft.

(2) Ensures the aircraft load plans are complete and correctly prepared.

(3) Maintains coordination with the deploying unit and the TALCE.

(4) Obtains individual aircraft load completion time from the TALCE.

c. Arrival Airfield Control Group (AACG):

(1) Ensures arriving aircraft are unloaded in a timely manner.

(2) Maintains close liaison with the TALCE.

(3) Ensures unloading teams are available.

5. UNIT RESPONSIBILITIES:

a. Determines lift requirement.

b. Determines arrival priorities.

c. Establishes early liaison with:

(1) Airlift Control Element (TALCE)

(2) Departure Airfield Control Group (DACG)

(3) Arrival Airfield Control Group (AACG)

d. Identifies hazardous cargo.

e. Prepares supplies and equipment:

(1) Ensures all supplies are clean and dry.

(2) Inspects of packaging.

(3) Identifies bulk cargo and supplies to achieve an accurate count of 463L pallets and pallet dunnage (4" X 4") required.

f. Prepares vehicles:

(1) GVW: Ensure gross weight of vehicle including loaded cargo does not exceed the vehicle cross-country weight on vehicle data plate.

(2) Ensures mobile loaded cargo is securely restrained with 1/2-inch rope or a 5K nylon cargo strap.

(3) Reduces vehicles to fit in the aircraft.

(4) Drains fuel tanker (purge as necessary) and water tankers before shipment.

(5) Ensures fuel tanks are empty to a maximum of 3/4 tank full.

(6) Ensures an adequate amount material shoring is available.

6. SAFETY. Safety is a very important consideration in any airlift movement. Injury to personnel, damage to equipment or aircraft will impact the overall mission effectiveness. Brief all personnel on the importance of safe practices on the flight line and around aircraft.

REFERENCES:

1. AMC WORKBOOK 36-101 Vol I and II

2. DOD 4500.9R, PART III/MOBILITY